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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
PHAN, MAN U	

ART UNIT	PAPER NUMBER
2616	

DATE MAILED: 08/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/687,881	KHALIL ET AL.	
	Examiner	Art Unit	
	Man Phan	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 July 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Response to Amendment and Argument

1. This communication is in response to applicant's 07/02/2004 Amendment in the application of Khalil et al. for a "Buffer management for mobile internet protocol" filed 10/13/2000. This application claims benefit from Provisional Application 60/160,031 dated 10/18/1999. Claims 7, 8, 28 have been amended, and claims 29-33 have been added. The amendment and response has been entered and made of record. Claims 1-33 are pending in the present application.

2. Applicant's remarks and argument to the rejected claims are insufficient to distinguish the claimed invention from the cited prior arts or overcome the rejection of said claims under 35 U.S.C. 103 as discussed below. Applicant's argument with respect to the pending claims have been fully considered, but they are not persuasive for at least the following reasons.

3. In response to applicant's argument that the combination of cited references fails to present a prima facie case of obviousness. In response, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). It is not necessary that a "prima facie" case of unpatentability exist as to the claim in order for "a substantial new question of patentability" to be present as to the claim. Thus, "a substantial new question of patentability" as to a patent claim could be present even if the

examiner would not necessarily reject the claim as either fully anticipated by, or obvious in view of, the prior art patents or printed publications. As to the importance of the difference between "a substantial new question of patentability" and a "prima facie" case of unpatentability see generally In re Etter, 756 F.2d 852, 857 n.5, 225 USPQ 1, 4 n.5 (Fed. Cir. 1985). Also, See MPEP § 2141.01(a) for a discussion of analogous and nonanalogous art in the context of establishing a prima facie case of obviousness under 35 U.S.C. 103. See MPEP § 2131.05 for a discussion of analogous and nonanalogous art in the context of 35 U.S.C. 102. 904.02.

In response to Applicant's argument that there is no suggestion to combine the references, i.e., Rai et al. (US#6,414,950) and Sato (US#6,553,015) as proposed in the office action. The Examiner recognizes that references cannot be arbitrarily combined and that there must be some reason why one skilled in the art would be motivated to make the proposed combination of primary and secondary references. *In re Nomiya*, 184 USPQ 607 (CCPA 1975). However, there is no requirement that a motivation to make the modification be expressly articulated. The test for combining references is what the combination of disclosures taken as a whole would suggest to one of ordinary skill in the art. *In re McLaughlin*, 170 USPQ 209 (CCPA 1971). In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

The Examiner emphasizes for the record that the claims employ a broader in scope than the Applicant's disclosure in all aspects. In addition, the Applicant has not argued any narrower interpretation of the claim limitations, nor amended the claims significantly enough to construe a narrower meaning to the limitations. Since the claims breadth allows multiple interpretations and meanings, which are broader than Applicant's disclosure, the Examiner is required to interpret the claim limitations in terms of their broadest reasonable interpretations while determining patentability of the disclosed invention. See MPEP 2111. In other words, the claims must be given their broadest reasonable interpretation consistent with the specification and the interpretation that those skilled in the art would reach. See *In re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000), *In re Cortright*, 165 F.3d 1353, 1359, 49 USPQ2d 1464, 1468 (Fed. Cir. 1999), and *In re American Academy of Science Tech Center*, 2004 WL 1067528 (Fed. Cir. May 13, 2004). Any term that is not clearly defined in the specification must be given its plain meaning as understood by one of ordinary skill in the art. See MPEP 2111.01. See also *In re Zletz*, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989), *Sunrace Roots Enter. Co. v. SRAM Corp.*, 336 F.3d 1298, 1302, 67 USPQ2d 1438, 1441 (Fed. Cir. 2003), *Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc.*, 334 F.3d 1294, 1298 67 USPQ2d 1132, 1136 (Fed. Cir. 2003). The interpretation of the claims by their broadest reasonable interpretation reduces the possibility that, once the claims are issued, the claims are interpreted more broadly than justified. See *In re Prater*, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-551 (CCPA 1969). Also, limitations appearing in the specification but not recited in the claim are not read into the claim. See *In re Van Geuns, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).*

Therefore, the failure to significantly narrow definition or scope of the claims and supply arguments commensurate in scope with the claims implies the Applicant intends broad interpretation be given to the claims. The Examiner has interpreted the claims in parallel to the Applicant in the response and reiterates the need for the Applicant to distinctly define the claimed invention.

Applicant's argument with respect to the rejected claim 1 (page 7, last paragraph) that the cited reference does not teach any "*any buffer management algorithm*". The Examiner wish to point out that the limitation "*buffer management algorithm*" is not defined in the claim, does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is not clear what constitutes such "*buffer management algorithm*", It is not clear what the "*buffer management algorithm*" is or what is involved in determining a buffered data for supporting a handoff. However, It is the claims that define the claimed invention, and it is claims, not specifications that are anticipated or unpatentable. *Constant v. Advanced Micro-Devices Inc.,* 7 USPQ2d 1064. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See In re Van Geuns, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Since no substantial amendments have been made and the Applicant's arguments are not persuasive, the claims are drawn to the same invention and the text of the prior art rejection can be found in the previous Office Action. Therefore, the Examiner maintains that the references cited and applied in the last office actions for the rejection of the claims are maintained in this office action.

Claim Rejections - 35 USC ' 101

4. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 31-33 and 8-27 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a specific asserted utility or a well established utility. Claims 31-33 and 8-27 merely defines "*a software program* " or *expression of the program*, and is not directed to statutory subject matter. It's not tangibly embodies and non-functional descriptive material - data per se.

While the claims recite a software program or description of the program for facilitating connections between nodes of a network, the software program being claimed does not satisfy the definition of "structural and functionality interrelationships" known to those skilled in the art. The "*software programs*" claimed as computer listings per se, i.e., the descriptions or expressions of the program, are not physical "things", and are not statutory because they are not capable of causing functional change in the computer. See, e.g., Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760. They are neither computer components nor statutory processes, as they are not "acts" being performed. Such claimed "*software program*" do not define any structural and fuctional interrelationships between the computer program and other claimed elements of a computer which permit the computer program's functionality to be realized. In the claims 31-33 and 8-27, the claims do not manipulate data representing physical objects or activities to achieve

a practical application (i.e., pre-computing process activity). Pre-computing process activity requires the measurements of physical objects or activities to be transformed outside of the communications protocol into the communications data structure, where the data comprises signals corresponding to physical objects or activities external to the communication system, and where the process causes a physical transformation of the signals which are intangible representations of the physical objects or activities. Therefore, what applicant is attempting to claim as a software program or the descriptions or expressions of the programs as is known in the art. The claims are actually drawn to non-functional descriptive material stored on a computer readable medium. The description given in the specification does not cure this problem. In practical terms, claims define non-statutory processes if they simply manipulate abstract ideas, e.g., a bid or a bubble hierarchy, without some claimed practical application, Schrader, 22 F.3d at 293-94, 30 USPQ2d at 1458-59; Warmerdam, 33 F.3d at 1360, 31 USPQ2d at 1759.

Claims 31-33 and 8-27 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a specific asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

Claim Rejections - 35 USC ' 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1-13 and 23-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rai et al. (US#6,414,950) in view of Sato (US#6,553,015).

With respect to claims 1-7, both Rai et al. (US#6,414,950) and Sato (US#6,553,015) discloses a novel method and system for supporting a handoff of a mobile node from a first agent of a first network to a second agent of a second network according to the essential features of the claims. Rai teaches the Mobile IP handoffs which involve exchange of control messages between an end system's agent, the end system's home agent and potentially its corresponding hosts (CHs) (with route optimization option) (Col. 2, lines 31 plus). Rai further teaches in Fig. 34, illustrated the ladder diagram depicting a micro handoff scenario, in which the micro

mobility handoff handles end system (designated MN for mobile node) movement between wireless hubs that belong to the same registration server and where the end system can still be served by the existing serving IWF. When an advertisement is received from a new wireless hub (through a new AP), the end system sends a message to request registration to the registration server. The registration request is relayed from the new AP to the new wireless hub to the registration server. When the registration server determines that the existing IWF can still be used, the registration server sends a build XTunnel Request message to request the existing IWF to build an XTunnel to the new wireless hub. Later, the registration server sends a tear down XTunnel request message to request the existing IWF to tear down the existing XTunnel with the old wireless hub. The build and tear XTunnel Request messages can be combined into one message (See also Fig. 3; Col. 42, lines 40 plus). To avoid losing traffic during handoffs, For micro mobility, information about the new wireless hub is included in the Tear XTunnel message exchanged between the serving IWF and the old WH. That way, the old wireless hub can *forward buffered packets to the new wireless hub upon hearing a TearXTunnel message* from the serving IWF. Alternatively, the RLP layer at the IWF knows the sequence number that has been acknowledged by the old wireless hub so far. At the same time, the IWF knows the current send sequence number of the latest packet sent to the old wireless hub. Therefore, the IWF can forward those packets that are ordered in between these two numbers to the new wireless hub before sending newer packets to the new wireless hub. The RLP layer is assumed to be able to filter duplicate packet. The second approach is probably preferable to the first approach for the old wireless hub may not be able to communicate with one another directly (Col. 46, lines 64 plus).

In the same field of endeavor, Sato (US#6,553,015,) teaches handoff method for a mobile ATM communications network, wherein upstream ATM cells and downstream ATM cells are transmitted between a mobile site and a fixed site over a first communication link and a handoff request message is sent from the mobile site to the fixed site when the first communication link is likely to become unavailable. The handoff method comprises the steps of (a) *holding the upstream ATM cells in a mobile-site buffer immediately following the transmission of the handoff request message* and determining the location of one of the upstream cells within the mobile-site buffer which is to be transmitted first when transmission of upstream cells is resumed and storing an address pointer indicating the location in a mobile-site memory, (b) transmitting an end-of-stream OAM cell from the mobile site to the fixed site over the first communication link, (c) holding the downstream ATM cells in a fixed-site buffer in response to the end-of-stream OAM cell and determining the location of one of the downstream cells within the fixed-site buffer which is to be transmitted first when transmission of downstream cells is resumed and storing an address pointer indicating the location in a fixed-site memory, (d) establishing a second communication link between the mobile site and the fixed site, and (e) resuming transmission of upstream ATM cells from the mobile site, starting with a location of the mobile-site buffer specified by the address pointer in the mobile-site memory and resuming transmission of downstream ATM cells from the fixed site, starting with a location of the fixed-site buffer specified by the address pointer in the fixed-site memory (Col. 20, lines 4 plus).

With respect to claim 28, it's a system claim corresponding to the method claim 1 as discussed in paragraph 4 above. Therefore, claim 28 is analyzed and rejected as previously discussed with respect to claim 1.

With respect to claims 8-13 and 23-27 and 29-33, These claims differ from claims Rai et al. in view of Sato in that the claims recited a software program product for performing the same basis of steps and apparatus of the prior arts as discussed in the rejection of claims 1-7. It would have been obvious to a person of ordinary skill in the art to implement a software program product in Rai et al. in view of Sato for performing the steps and apparatus as recited in the claims with the motivation being to provide the efficient enhancement to a handoff of a mobile in a mobile IP network, and easy to maintenance, upgrade.

One skilled in the art would have recognized the need for effectively and efficiently in supporting the transfer of data to a mobile node in mobile IP handoffs utilizing buffer control messages, and would have applied Sato's teaching of the initiation request messages of the handoff into Rai's novel use of the micro mobility handoff scenario in mobile IP handoffs messages. Therefore, It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to apply Sato's high speed switching of communications links without interrupting ATM cell traffic into Rai's sequence delivery of messages with the motivation being to provide a method and system for supporting a handoff of a mobile node in mobile IP handoffs messages.

9. Claims 14-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rai et al. (US#6,414,950) in view of Sato (US#6,553,015) as applied to the claims above, and further in view of Siu et al. (US#6,252,851).

With respect to claims 14-22, these claims differ from the claims above in that the claims require the buffer controlling messages in supporting handoff. In the same field of endeavor, Siu

et al. (US#6,252,851) discloses a method for regulating flow through a network node where forwarding of successive data packets from sources is dependent on receipt of acknowledgments from the destinations, the packets are buffered in a packet buffer as they arrive from their sources. Acknowledgments are withheld in an acknowledgment bucket, and are released such that successive data packets are buffered in the sources to avoid overflow of the packet buffer due to bandwidth limitations toward the destinations. The destination is typically in a bandwidth constrained network (BCN) while the source is in a local area network (LAN) using transmission control protocol (TCP). In a preferred embodiment the BCN operates in asynchronous transfer mode (ATM), and a transmission rate of the BCN is returned upon request. TCP source states are maintained by observing TCP traffic through the node. The behavior of TCP sources is predicted from traffic observations. Then, the known transmission rate of the BCN is translated to a timed sequence of acknowledgments releases based on the predicted behavior. Alternatively, an estimate is maintained of effective queue size, which includes data buffered in the packet buffer, and residual data packets, i.e., those data packets that have been requested but have not yet been received at the node. An acknowledgment is released if the effective queue size is less than a threshold, which may be dynamic (See Fig. 5; Col. 3, lines 10 plus).

One skilled in the art would have recognized the need for effectively and efficiently in supporting the transfer of data to a mobile node in mobile IP handoffs utilizing buffer control messages, and would have applied Siu's buffer control in regulating TCP flow and Sato's teaching of the initiation request messages of the handoff into Rai's novel use of the micro mobility handoff scenario in mobile IP handoffs messages. Therefore, It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to apply

Siu's method for regulating TCP flow over heterogeneous networks, and Sato's high speed switching of communications links without interrupting ATM cell traffic into Rai's sequence delivery of messages with the motivation being to provide a method and system for supporting a handoff of a mobile node in mobile IP handoffs messages.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The Lee (US#6,771,621) is cited to show the method for allocating link resources between mobile switching center and base station.

The Lim (US#6,766,168) is cited to show the packet data service network in a mobile radio communication network and method of operating a packet data service using the packet data service network.

The Imai (US#6,697,878) is cited to show the computer having a remote procedure call mechanism or an object request broker mechanism, and data transfer method for the same.

The Willenz et al. (US#5,999,981) is cited to show the switching Ethernet controller providing packet routing.

The Sasamoto (US#6,647,264) is cited to show a mobile communication system and method for transmission of connectionless packets.

The Rai et al. (US#6,577,643) is cited to show the message and communication system in a network.

The Chuah et al. (US#6,400,722) is cited to show the optimum routing system.

The Lee (US#6,301,234) is cited to show a reduction method of successive hard handoffs between base station in CDMA mobile communication system.

The Wakizaka (US#6,081,714) is cited to show the low traffic handoff method for CDMA cellular network using different frequencies among base stations.

11. **THIS ACTION THIS ACTION IS MADE FINAL.** See MPEP ' 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. Phan whose telephone number is (571) 272-3149. The examiner can normally be reached on Mon - Fri from 6:00 to 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin, can be reached on (571) 272-3134. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2600.

13. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at toll free 1-866-217-9197.

Mphan

Aug. 16, 2006

MAN U. PHAN
PRIMARY EXAMINER